

## BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

### Maximum Load/Demand till Date

<b>Date:</b>	<b>April 29, 2020</b>
<b>Hours:</b>	<b>19:00 Hours</b>

Date	Time	Load(MW)
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Name of Feeders	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Fdr- I	0.00		Unit- I,IV & V standby. 400kV THP-SIL I Standby
		Unit- II	140.17	400kV THP - Siliguri Fdr- II	98.78	+	
		Unit- III	79.71	400kV THP - Siliguri Fdr- IV	93.29	+	
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	158.95	+	
		Unit- V	0.00	400kV Malbase - Siliguri	78.67	+	
		Unit- VI	140.72	-	-	-	
		<b>Total</b>	<b>360.60</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>9.58</b>	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	104.50	+	Unit- IV Standby & Unit I AMP(11 to 30.4.2020). 400kV MHP-JLG II & III Standby.
		Unit-II	105.13	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	105.16	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	104.60	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>210.29</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>1.19</b>	
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	68.14	+	Unit-I under shutdown till 30th April and Unit IV standby. 220kV CHP-Mal under shutdown till 30.4.2020.
		Unit- II	57.71	220kV CHP - Birpara Fdr- II	67.93	+	
		Unit- III	58.66	220kV CHP - Malbase Fdr- III	0.00		
		Unit- IV	63.95	220kV CHP - Semtokha Fdr- IV	24.28	+	
		-	-	220kV Malbase - Birpara Fdr.	-63.34	-	
		-	-	66kV CHP - Chumdo Fdr.	10.25	+	
		-	-	66kV CHP - Gedu Fdr.	6.64	+	
		-	-	3x3MVA, 66/11kV TFR	1.63	+	
		<b>Total</b>	<b>180.32</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>1.45</b>	
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Fdr.	21.40	+	U/S Unit-I Standby
		Unit- II	11.79	66kV BHP - Lobeysa Fdr.	14.06	+	
		<b>Total</b>	<b>11.79</b>	220kV BHP - Tsirang Fdr.	-1.90	-	
	40MW BHP (L/S)	Unit- I	13.19	5MVA, 66/11kV TFR	0.91	+	
		Unit- II	12.67	30MVA ICT, 220/66kV	0.00		
		<b>Total</b>	<b>25.86</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>3.18</b>	
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	29.89	+	Unit-I Standby
		Unit-II	30.16	220kV Jigmeling - Dagapela Fdr.	0.00		
		-	-	5MVA, 220/33kV TFR	0.00		
		<b>Total</b>	<b>30.16</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.27</b>	
6	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Fdr- I	19.16	+	Unit I standby
		Unit-II	12.00	132kV KHP - Kilikhar Fdr- II	15.70	+	
		Unit- III	12.00	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	12.00	132kV Gelephu - Salakati Fdr.	-3.10	-	
		-	-	132kV Motanga - Rangia Fdr.	6.90	+	
		-	-	220kV Tsirang - Jigmeling	31.50	+	
		<b>Total</b>	<b>36.00</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>		<b>0.84</b>	

### Note: Generation-Load Summary for April 29, 2020 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	608.73	233.76	219.28	343.47	14.48
2	Eastern Grid	246.29	64.89	62.86	212.90	2.03
	<b>Total</b>	<b>855.02</b>	<b>298.65</b>	<b>282.14</b>	<b>556.37</b>	<b>16.51</b>

### Note: Generation-Load Summary for April 29, 2019 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	868.14	280.53	295.05	568.76	-14.52
2	Eastern Grid	65.69	60.57	59.83	23.97	0.74
	<b>Total</b>	<b>933.83</b>	<b>341.10</b>	<b>354.88</b>	<b>592.73</b>	<b>-13.78</b>

### NOTES:KHP & MHEP Loads collected from site.

- The Instantaneous load balance is calculated as (Total generation - (Total export-Import) - Total domestic load) do not tend towards zero. This could be due to the following reasons:
  - Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
  - The clocks of all the locations are not synchronized.
- This report is generated to give an idea of the generation & load flow for the system at a particular instant.

**BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT**

**Maximum Load/Demand till Date**

<b>Date:</b>	<b>April 30, 2020</b>
<b>Hours:</b>	<b>09:00 Hours</b>

<b>Date</b>	<b>Time</b>	<b>Load(MW)</b>
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Name of Feeders	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Fdr- I	0.00		Unit-I,IV & V standby. 400kV THP-SIL I under standby.
		Unit- II	98.18	400kV THP - Siliguri Fdr- II	81.65	+	
		Unit- III	80.69	400kV THP - Siliguri Fdr- IV	78.47		
		Unit- IV	0.00	400kV THP - Malbase Fdr- III	121.61	+	
		Unit- V	0.00	400kV Malbase - Siliguri	69.16	+	
		Unit- VI	110.31	-	-	-	
		<b>Total</b>	<b>289.18</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>7.45</b>		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Fdr - I	119.22		Unit-IV Standby & Unit I AMP(11 to 30.4.2020). 400kV MHP-JLG II & III Standby.
		Unit-II	120.09	400kV MHP - Jigmeling Fdr - II	0.00		
		Unit-III	119.87	400kV MHP - Jigmeling Fdr - III	0.00		
		Unit-IV	0.00	400kV MHP - Jigmeling Fdr - IV	118.89	+	
		-	-	200MVA, 400/132kV ICT	0.00		
		-	-	(Local Load)			
		<b>Total</b>	<b>239.96</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.85</b>		
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Fdr- I	74.53	-	Unit-I under shutdown till 30th April. 220kV CHP-MAL under shutdown till 30.4.2020.
		Unit- II	63.53	220kV CHP - Birpara Fdr- II	74.48	-	
		Unit- III	50.89	220kV CHP - Malbase Fdr- III	0.00	+	
		Unit- IV	45.99	220kV CHP - Semtokha Fdr- IV	-2.72	+	
		-	-	220kV Malbase - Birpara Fdr.	-75.45	-	
		-	-	66kV CHP - Chumdo Fdr.	5.58	+	
		-	-	66kV CHP - Gedu Fdr.	7.26	+	
		-	-	3x3MVA, 66/11kV TFR	1.01	+	
		<b>Total</b>	<b>160.41</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.27</b>		
4	24MW BHP (U/S)	Unit- I	4.90	220kV BHP - Semtokha Fdr.	34.17	+	
		Unit- II	4.70	66kV BHP - Lobeysa Fdr.	10.97	+	
		<b>Total</b>	<b>9.60</b>	<b>220kV BHP - Tsirang Fdr.</b>	<b>-15.30</b>	<b>-</b>	
	40MW BHP (L/S)	Unit- I	9.95	5MVA, 66/11kV TFR	0.41	+	
		Unit- II	9.52	30MVA ICT, 220/66kV			
		<b>Total</b>	<b>19.47</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>-1.18</b>		
5	126MW DHPC	Unit-I	0.00	220kV DHPC - Tsirang Fdr.	37.96	+	Unit I standby.
		Unit-II	38.17	220kV Jigmeling - Dagapela Fdr.			
		-	-	5MVA, 220/33kV TFR			
		<b>Total</b>	<b>38.17</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>0.21</b>		
6	60MW KHP	Unit- I	13.47	132kV KHP - Nangkhon Fdr- I	34.94	+	Unit I standby.
		Unit-II	13.47	132kV KHP - Kilikhar Fdr- II	16.49	+	
		Unit- III	13.22	5MVA, 132/11kV TFR	0.15	+	
		Unit- IV	13.22	132kV Gelephu - Salakati Fdr.	4.60	-	
		-	-	132kV Motanga - Rangia Fdr.	21.37	+	
		-	-	220kV Tsirang - Jigmeling	19.63	+	
		<b>Total</b>	<b>53.38</b>	<b>Error at Station/Auxiliary Consumption/Losses</b>	<b>1.80</b>		

**Note: Generation-Load summary for April 30, 2020 at 09:00hrs.**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	516.83	194.36	187.61	302.84	6.75
2	Eastern Grid	293.34	48.89	45.24	264.08	3.65
	<b>Total</b>	<b>810.17</b>	<b>243.25</b>	<b>232.85</b>	<b>566.92</b>	<b>10.40</b>

**Note: Generation-Load Summary for April 30, 2019 at 09:00hrs**

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import	Load Balance
1	Western Grid	833.95	248.22	243.68	583.93	4.54
2	Eastern Grid	66.15	50.25	50.45	16.70	-0.20
	<b>Total</b>	<b>900.10</b>	<b>298.47</b>	<b>294.13</b>	<b>600.63</b>	<b>4.34</b>

**NOTES: KHP and MHP loads collected from site.**

- The Instantaneous load balance is calculated as (Total generation - (Total export-Import) - Total domestic load) do not tend towards zero. This could be due to the following reasons:
  - Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
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